Where the Elephant Got His Trunk

Science Is Now Able to Trace the Huge Creatures Back Through Various Changes for 2,000,000 Years and Explain Just What Developed the Huge Tusks and Caused the Nose to Keep on Growing

By Dr. W. H. Ballou.

The Modern Elephant with a Trunk Twice as Long as His Ancestor, the Mammoth, Who Was Very Much Bigger.

EVERYBODY with an inquiring mind who has watched the elephant at the circus or menagerie has wondered how this enormous creature came into existence; why it has such an exaggerated trunk instead of a nose, like other animals; why it possesses many other curious features, and why, with all these peculiarities, it should be one of the most intelligent of beasts.

Science has now answered all of these questions for us authoritatively. At the same time it has proved the interesting fact that America was the world's greatest breeding ground of primitive and prehistoric elephants. Fresh confirmation of this is contained in the following interesting announcement just sent out by the American Museum of Natural History of New York:

"The American Museum has acquired from E. L. Troxell, of Ann Arbor, a well-known collector, the first mountable skeleton of a new species of mastodon unearthed in the Tertiary rocks of Northern Texas, where the indications are that mastodons of this kind lived in the Pliocene Age, about 800,000 years ago. The species is regarded as a descendant of a race of European mastodons. In the Western Hemisphere, however, the long-jawed mastodons attained a greater size than did the European variety. This animal stood eight feet high and its bones are very massive."

This little announcement takes us back to an age 800,000 years ago and more when America was overrun with almost countless herds of elephants, far more numerous than the buffalo, which were to swarm later. They became extinct quite suddenly, and why they did so is also explained.

But before studying America as the happy home of elephants, it is interesting to learn how the beast came into existence, evolved and grew up, as the American Museum and the chief American palaeontolgists have traced the story.

Two million years ago the original ancestor of the elephants lived in ancient Egypt. Dr. Edwin Hinckley Barbour, the State geologist of Nebraska, a great authority on prehistoric elephants, says it was in the Upper Eocene geological period, while Professor R. S. Lull, of Yale University, places it a little later in the following period, the Lower Oligocene.

His remains have been found only around the ancient Lake Moeris, now dried up, in lower Egypt. Hence he has been called the "Moeritherium." He was about the size of a hound dog, but more like a pig or tapir in appearance; an active, rooting little beast. He had a well-developed nose, but not larger than that of a pig. His upper canine teeth were fairly prominent.

No one would have thought to look at this little beast that he was to become the ancestor of all the mighty elephants and to people the whole world with his descendants.

He was a swamp dweller, Professor Lull tells us, living upon the succulent semi-aquatic herbage that abounded on the edges of the vast tropical lake. This abundance of food caused successive generations of the Moeritherium to grow larger. Digging in the mud caused him to develop a lower jaw to shovel up the fodder, while the need of pulling up thick roots made his tusks grow longer and stronger. Thus he was started on the way to becoming an elephant.

After many thousands of years Lake Moeris, or the swampy overflow of the Nile, grew dryer. The Moeritherium climbed to dry land and grew into the Palaeomastodon, or "very early mastodon," an animal about the size of a small pony with relatively much larger nose and tusks than the Moeritherium.

Stretching out his nose for roots and reaching it upward out of the water for air started it on the way to becoming a trunk.

The Palaeomastodons multiplied enormously in ancient Egypt in the Lower Oligocene period about 1,500,000 years ago.

"After centuries of change at their birthplace in Northern Africa," writes Professor Barbour, "their migrations took them throughout Africa, northward into Europe and the British Isles, into Euro-Asia, India and Siberia, into North America, thence into South America. While the tusks and trunks were developing until they became ponderous during the ages required for these mutations and migrations, the superficial area of the skull was also increasing. Otherwise there would not have been the extent of surface necessary for the attachment of muscles and ligaments to carry the ever-increasing load.

"At first the proboscis, or trunk, was small, but little more than a prehensile lip, much like that of the horse, and used in much the same way to guide food into the mouth. In later types perfection of specialization was attained by this remarkable organ. This also added weight to the skull."

Note the interesting fact that weight of tusks and trunk led to increase of brain space, and hence to growth of intelligence in the elephants.

When the neck became short, the trunk had to grow longer.

The next distinct form that evolved after Palaeomastodon was the Tetrabelodan, whose name means "four teeth." The evidence of the bones indicates that the animal was at one time returning to swampy life, for the increasing lower tusks and jaws are adapted to digging in the mud.

"The lower jaw gradually lengthened, reaching its extreme length in Tetrabelodon longirostris of the lowe r Pliocene period," says Professor Barbour. "Later the lower jaw decreased in length as the lower tusks disappeared, while the upper tusks lengthened into the extreme of the last of the mastodons, Americanus.

"The ancestral proboscidean had a number of teeth, after the manner of typical mammals, and these were erupted in the usual way; that is, by new teeth pushing upward and gradually displacing the old. As teeth became too large, they were reduced in matured adults to one large, specialized tooth in each jaw.

"Tusks are incisor teeth, which grow from persistent pulps."

Tetrabelodon lived all over the world, from Egypt, Europe and Asia to America, and especially Nebraska. This was the first proboscidean that began to look like a genuine elephant. He had a long trunk and tusks. The latter were at first turned down for digging in the mud, and this lower jaw was in some species six and one-half feet in length. Intermediate forms between Palaeomastodon and Tetrabelodon must have travelled from the Old World to America by way of the Arctic land bridges, and there given rise to the second type.

A variety of this elephant-like creature called Tetrabelodon Willistoni, because the remains were found by Professor Williston, lived in Nebraska. It had a shorter lower jaw and longer trunk than the earlier type. After Tetrabelodon came Eubelodon, the earliest type of mastodon, still in the Pliocene period. Fine specimens have been found in Devil's Gulch, Nebraska. This animal had very large, nearly straight tusks, showing that they were used just as much for fighting and tearing off branches of trees as for digging things from the mud.

The elephant animals had to grow in size and strength in order to hold their own with the carnivorous cat animals, which were growing at an alarming rate. The sabre-toothed tiger, a frightfully armed monster as big as a cow, roamed the jungles of Nebraska. But a well-developed mastodon could toss a sabre-tooth tiger to death with his tusks as easily as a bull tosses a dog. These combats naturally increased the intelligence of the surviving animals.

Eubelodon evolved into Mastodon Americanus, a true mastodon, which looked almost like an elephant, although it was smaller and had less top head. The Mastodon usually had upper tusks slightly curving upward, very small lower jaw and no lower tusks. He became especially abundant in the Pleistocene period in Nebraska about 500,000 years ago.

The Mastodon, whose name means "toothed beast," survived long after primitive man arose in America and elsewhere. He would be alive to-day, perhaps, if primitive man had not joined in the chase and used him not only for a meal ticket, but made clothes and things out of his hide. He could beat off carnivorous beasts, but not foxy man with stick-throwers and, perhaps, very rough bows and arrows.

An interesting picture is drawn by Professor Barbour of the age, extending perhaps over a million year, when mastodons swarmed in Nebraska, along with giraffes and camels, and evolved into higher types. He says:

"As many as 120 mastodons and mammoths have been found in a single swamp. Quite a number have been taken from blocks of ice and thus preserved in actual flesh. They are of world-wide distribution and have been found in every quarter of Nebraska. They roamed this country in such vast herds that they are likened in numbers to the bison.

"The question always rises, what led to the extermination of such countless hosts of gigantic mammals? In brief, it may be said that climatic changes, spread of disease, ravages of predatory beasts and the advent of man are among the chief causes of extinction. The is good reason for believing that man and the fossil elephants were contemporaneous, for the animal bones are found associated with implements and pottery, and pictures of fossil elephants."

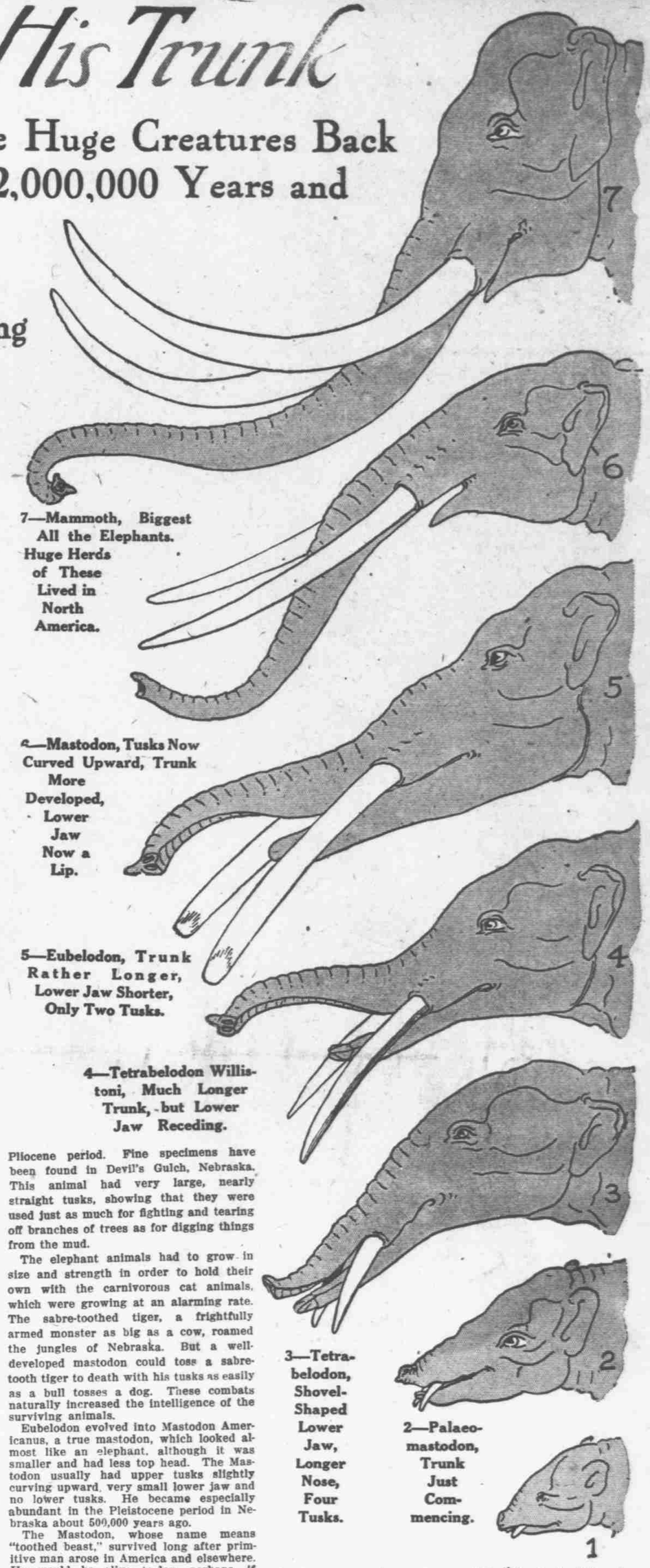
From the mastodon evolved the mammoth, the largest land animal that ever existed. A large specimen stood probably fourteen feet high at the shoulder, was covered with hair as thick as fur, and was so immense that he would have made a modern elephant look like a dog. He was a superior elephant, for he had a larger skull and beautifully curved tusks. These wonderful animals were very abundant in Nebraska down to 25,000 years ago, at least.

We possessed in this country the finest type of mammoth, the "Imperial Mammoth," concerning which Professor Barbour says:

"Of the mammoths, or true elephants, the most majestic of all, Elephas Imperator (the imperial elephant), with height exceeding thirteen feet, ranged from Nebraska westward to the Pacific coast, southward into Mexico, and flourished during Pleistocene times."

These animals lived during the glacial period, for which they evolved their thick hair.

The existing elephants, which we see in the circus and menagerie, are descended from the animals of the Moeritherium stock that remained in Africa and Southern Asia. There are now two varieties, the African and the Asiatic, and they do not differ greatly. They missed the glacial period, always lived a jungle life, and jumped more rapidly from the Moeritherium to their present stage of evolution than the American types.



7—Mammoth, Biggest All the Elephants. Huge Herds of These Lived in North America.

6—Mastodon, Tusks Now Curved Upward, Trunk More Developed, Lower Jaw Now a Lip.

5—Eubelodon, Trunk Rather Longer, Lower Jaw Shorter, Only Two Tusks.

4—Tetrabelodon Willistoni, Much Longer Trunk, but Lower Jaw Receding.

3—Tetrabelodon, Shovel-Shaped Lower Jaw, Longer Nose, Four Tusks.

2—Palaeomastodon, Trunk Just Commencing.

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1—Moeritherium, with Normal Mouth.

Portrait Gallery of the Elephant's Ancestors, from Drawings by Dr. E. H. Barbour.

PHOTO
AMERICAN MUSEUM OF NATURAL HISTORY

Profile View of the Palaeomastodon, Which Was the First Ancestor of the Modern Elephant That Showed the Beginning of the Development of a Trunk. This Creature Lived Two Million Years Ago in Egypt and Had a Long Flexible Snout. From Reconstruction by Erwin Christman in the American Museum of Natural History.